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## CORRESPONDENCE FROM BRAZIL.

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NATAL, BRAZIL, *May 30, 1911.*

As I have a chance to get letters away to-morrow, and as I have a little breathing spell this afternoon, I will give you an idea what we have been doing since reaching Brazil.

Unfortunately, we lost much time in Ceará waiting for the way steamer to bring us to this smaller port, and as the vessel was expected from day to day we did not unpack our outfit, so our work was not carefully done.

The authorities have been most considerate, admitting our things without duties, and in every way facilitating our work. At Ceará we were taken in a special train to Quixadá—164 kilometers—where the largest dam in Brazil is located. It is a surprise to all of our party who are new to the country to find that the States of Ceará and Rio Grande do Norte, making up the northeastern portion of Brazil, have a climate about as dry as that of Southern California and not very unlike it in many other respects. Nowhere did we see the luxuriant tropical vegetation which we were accustomed to in Mexico and Central America. The whole coast is a line of sand dunes, constantly shifting, varied by an underlying sand rock in places, and as far as we went the timber is all small.

The dam at Quixadá is an enormous affair, and owing to the scanty rainfall of the district and the limited watershed, which probably was never carefully estimated, it is much larger than is needed and has never entirely filled.

For two days we were the guests of the railroad and government officials and were royally treated. The train made frequent stops at stations and wherever there seemed any prospects of finding things zoological. Before we reached our destination we had scared the natives by our collection of lizards, toads and snakes, and I had been able to get a few specimens of land shells, to which I have been able to add extensively since. I am unable to determine anything with definiteness, but to date I have collected over a quart of living and dead shells apparently representing *Helix*, *Zonites*, *Bulimus*, *Bulimulus*, *Buliminus*, *Tomigerus* and *Stenogyra*. In Ceará the number of all except the last was very small, but back of Natal I have found the other genera represented in considerable numbers.

In Natal we were again the guests of the railroad and government officials for a run of 86 kilometers to Baixa Verde, located in the "Campos" country, the great rolling comparatively barren plains of the interior of the State. On the way we passed a single limestone cut furnishing a fine lot of fossils and also representatives of at least three species of living shells. The low, brushy timber through which we ran was largely made up of the Mangabeira, the rubber tree of Southeastern and Eastern Brazil, which at a distance reminds one of a small weeping willow. This, in season, furnishes employment for a considerable number of men, and yields sufficient rubber to show considerable export. For the rest, Cactus, Acacia and similar growths take one back in imagination to the lower parts of Arizona and New Mexico.

Later we were furnished a custom-house steamer for a run of 20 miles down the coast to the little town of Piraugy. Here we dropped into a typical tropical settlement, very primitive and poor, but most interesting. This region is noted for its native pillow lace, and here it was for sale very cheap, so that most of our party invested small sums. We estimated the time spent in making some of it and found the women selling the results of their labor for from two to four cents a day.

I interested the native boys in collecting, and on the shore rocks we got at least one species of *Chiton*, a small *Arca* like *solidissima* and a small variety of things not yet determined. On a reef about a mile out I added a few things, but my impression formed here and at Ceará is that the conchological fauna is extremely poor both in number of species and of specimens. I spent an hour dredging at

the boat's anchorage in two fathoms of water and had much difficulty in getting the material aboard as the sand was almost too fine to stay in the dredge net. The material is not rich, but a large handful looked over yesterday yielded a Dentalium, a Turbonilla, and three or four minute Rissoids.

At Ceará I found *Neritina virginea* very common and all along the coast a *Cryptogramma* is in evidence. Also two species of the Lucinidae, one measuring about two inches across are not rare, as well as several representatives of the Tellinidae, always beach-worn. A day's very careful dredging over some nine miles of the estuary on the side of which Natal is located, ranging from the muddy mangrove swamps above to the shifting sands at the mouth gave very little results, so that I am disappointed in the hope of securing a large collection while here. However, as we shall stay a month longer, I hope to be able to make a useful and fairly full report of what is here. There is a company about to begin work with a couple of deep-sea trawlers, and we have been invited to make ourselves at home aboard as soon as they get to work. This should give me a chance to see just what the bottom offers about this region.

Our original plan to work the coast from this point to Pará has been upset because the only available government boat is too small to carry the necessary supply of coal and water to make the long run between ports where coal can be had, and the owner of the only available sailing vessel demands \$3000.00 to take us to Pará, although the trip could be made in a month or six weeks. On this account, and because of the great possibilities which the trawlers offer, we have decided to make a careful survey of this region before moving up the coast.

You asked me to write you of our trip for use in the NAUTILUS. If any of the foregoing seems of sufficient interest for such use you are welcome to use it. As you will see, our plans have been largely changed, but it is the verdict of all concerned that a thorough survey of this region, which has never been worked at all, may yield as valuable results as anything we could do. We have passes over the two railroads, and everything points to efficient work.

Meanwhile we are beautifully located on a hill overlooking bay and ocean; there is a constant breeze from the ocean, and there is no appreciable heat unless one exerts oneself; so we are in for a delightful time, whatever our results may be.